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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,943	11/02/2006	Herbert Bruder	32860-000959/US	5404
30596 7590 11/28/2007 HARNESS, DICKEY & PIERCE, P.L.C. P.O.BOX 8910 RESTON, VA 20195			EXAMINER TANINGCO, ALEXANDER H	
			ART UNIT 2882	PAPER NUMBER
			MAIL DATE 11/28/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/556,943	BRUDER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Alexander H. Taningco	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/16/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Information Disclosure Statement*

Receipt of the Information Disclosure Statement (IDS) with copies of the reference cited therein, was received on 11/16/2005. An initialized copy of the IDS is enclosed with this office action.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-7, 9-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan et al. (US 2003/0163039) in view of Crawford (US 5,046,003).

With regards to claims 1 and 13, Pan et al. disclose a method comprising: scanning the examination object in one pass of at least one focus and at least one detector oppositely situated [0007]; performing the scanning of the examination region at a relative feed rate between gantry and couch [0007]; defining a set or regions to be scanned whereby a reconstruction point is then calculated [0023]; determining at least one static object area and at least one at least partially moving object area with reference to the examination object with the aid of cyclical intrinsic movement [0008]; and using, during a pass when scanning the examination object, a first feed rate in the at least one moving object area, and using another, second feed rate in the at least one static object area [0010]. Pan et al. fail to explicitly teach a method further comprising: a

spiral movement of at least one focus and at least one detector oppositely situated; and determining a three-dimensional image of absorption coefficients with the aid of a multiplicity of sectional planes of an examination volume on the basis of the data obtained by scanning. Crawford teach a method further comprising: a spiral movement of at least one focus and at least one detector oppositely situated (Col. 3 Line 31); determining a three-dimensional image of absorption coefficients with the aid of a multiplicity of sectional planes of an examination volume on the basis of the data obtained by scanning (Col. 2 Lines 6-16). It would have been obvious to one of ordinary skill in the art, at the time of invention to modify the invention of Pan et al. to include the features of Crawford to reduce artifacts thus improving image quality as taught by Crawford (Col. 1 Lines 9-10).

**With regards to claims 2, 15, and 19**, Pan et al. as modified above disclose a method comprising: wherein a relatively higher feed rate serves for scanning the static object area, and a relatively lower feed rate serves for scanning the moving object area [0022].

**With regards to claim 3**, Pan et al. as modified above disclose a method comprising: wherein the position of the beating heart is determined in order to divide the examination object into static and moving object areas [0004 Lines 1-5; 0023].

**With regards to claims 5 and 16**, Pan et al. as modified above disclose a method comprising: wherein the determination of static and moving object areas before the scan is performed by at least one optical recording, preferably with subsequent manual subdivision of the areas [0023].

**With regards to claim 6**, Pan et al. as modified above disclose a method comprising: wherein the transition between the feed rates is performed with a prescribed maximum acceleration [0027].

**With regards to claims 7, 17**, Pan et al. as modified above disclose a method comprising: wherein the determination of moving and static object areas is performed during the scan, and a relatively low feed rate is selected upon detection of a cyclical movement, and a relatively higher feed rate is selected upon detection of a static state [0022].

**With regards to claim 9**, Pan et al. as modified above disclose a method comprising: wherein during scanning at a relatively low feed rate, the movement of the heart is temporally resolved by way of ECG leads and is divided into movement phases and rest phases, with only detected data from the rest phase being used to compile images [0023].

**With regards to claim 10**, Pan et al. as modified above disclose a method comprising: wherein use is made when scanning the moving area of a CT spiral reconstruction method that uses only detector data from a specific cycle rest phase of the cyclically moving area [0023], whereas during scanning of the static area use is made of a spiral reconstruction method that uses all the measured detector data for the reconstruction [0024].

**With regards to claim 11**, Pan et al. as modified above disclose a method comprising: wherein the intensity of radiation emanating from the at least one focus is matched to the respectively current feed rate [0029].

**With regards to claim 12**, Pan et al. as modified above disclose a method comprising: wherein the intensity of radiation is matched by at least one of controlling and regulating a tube current [0009].

**With regards to claim 14**, Pan et al. as modified above disclose an apparatus comprising: wherein said means are implemented at least partially by at least one of programs and program modules [0009-0010].

**With regards to claim 16**, Pan et al. as modified above disclose a method wherein the determination of static and moving object areas before the scan is performed by at least one optical recording, with subsequent manual subdivision of the areas [0023].

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pan et al. (US 2003/0163039) and Crawford (US 5,046,003) as applied to claim 3 above, and further in view of Senzig et al. (US 6,023,494).

**With regards to claim 4**, Pan et al. as modified above disclose a method as recited above in claim 3. Pan et al. as modified above fail to explicitly teach a method further comprising: wherein the determination of static and moving object areas before the scan is performed by at least one topogram recording. Senzig et al. teach a method comprising: wherein the determination of static and moving object areas before the scan is performed by at least one topogram recording (Col. 6 Lines 44-45). It would have been obvious to one of ordinary skill in the art, at the time of invention to modify the invention of Pan et al. to include the features of Senzig et al. to identify the location of a region thus improving data analysis as taught by Senzig et al. (Col. 6 Lines 40-47).

Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pan et al. (US 2003/0163039) and Crawford (US 5,046,003) as applied to claim 1 above, and further in view of Hsieh (US 6,421,552).

**With regards to claims 8 and 18**, Pan et al. as modified above disclose a method as recited above in claim 1. Pan et al. fail to explicitly teach a method further comprising: wherein the detection of the cyclical movement of the subarea of the examination object is performed in the current scanning area by virtue of the fact that the intensity measurement of at least one pair of rays on a common ray axis is compared to two consecutive instants. Hsieh teaches a method comprising: wherein the detection of the cyclical movement of the subarea of the examination object is performed in the current scanning area by virtue of the fact that the intensity measurement of at least one pair of rays on a common ray axis is compared to two consecutive instants (Abs.; Col. 3 Lines 18-39). It would have been obvious to one of ordinary skill in the art, at the time of invention to modify the invention of Pan et al. to include the features of Hsieh to improve determining cardiac motion as taught by Hsieh (Col. 3 Lines 15-17).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patent(s) are cited to further show:

Tam (US 5,805,659)

(378/15)

- Spiral scan region of interest
- ROI is smaller than the object



Kinsinger (US 6,185,271)

(378/19)

- Updated scan parameters based upon data received
- Helical feedback scan control

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander H. Taningco whose telephone number is (571) 272-8048. The examiner can normally be reached on Mon-Fri 8:00-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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